

REMARKS

Reconsideration of this application is respectfully requested.

Claims 12-24 are pending in the application, of which only claims 12 and 24 are independent.

In the Office Action of June 27, 2003, the Examiner rejected claims 12-13 and 19-24, under 35 U.S.C. 102(b) as being anticipated by US 4,790,873 (Gesing et al, hereinafter “US ‘873”).

Applicants respectfully traverse this rejection. For the reasons set forth below, as well as for other reasons, it is believed that the claims are not anticipated by the prior art of record.

Specifically, claim 12 claims a device for filtering and **adding** a grain-refining material as follows:

“A device for filtering and **adding** a grain-refining material to a metal melt...comprising:
a first filter...
a grain-refining material feed...and
a second filter...”

Claim 24 claims a process for filtering and **adding** a grain refining as follows:

“A method for filtering and **adding** a grain refining...
filtering..
adding said grain-refining material to said melt after said filtering ...and
filtering said melt...”

The Examiner rejected claims 12-13 and 19-24 as being fully anticipated by US '873, citing Figures 7-9, and column 8 lines 5-63.

US '873 discloses a device for filtering a metal melt having a flow direction for the melt comprising a first filter with a porous filter medium and a second filter disposed downstream from the first filter in the flow direction (column 8 lines 5 to 21 and Figures 7 and 8).

Figure 9 of US' 873 shows a second embodiment of the invention in which a device for filtering a metal melt comprises a sandwich filter with three major layers, an upstream layer of non-wetted alumina (28), a midstream **layer of wetted titanium boride** (29), and a downstream support layer of non-wetted alumina (30) (column 8 lines 49 to 53). Although US '873 teaches a fine and coarser layer of titanium boride particles acting as grain refiner, it does not disclose a grain-refining **feed** located between the two filters as recited in independent claim 12 nor does it disclose the step of **adding** a grain-refining material after the molten metal is filtered the first time as claimed in independent claim 24. All that US '873 discloses is a bed of grain-refining material already in place between the two filters relative to the flow direction. One of the advantages of using a grain-refining feed as claimed in the presently claimed invention consists in the possibility of adding a controlled amount of grain refining material to the molten metal after the first filtering step.

Thus, a grain-refining material feed situated between a first filter and a second filter is not disclosed or suggested by the device of US '873 because the titanium boride particles are either **already present before** the metal melt interacts with the first filtering device (Figures 7 and 8), or they are an integrated part of the filter itself (Figure 9). Therefore, in US '873 the grain-

refining material can only be present in a constant amount and it contacts the molten metal either **before** the filtering step or on the surface of the filter itself. Accordingly, claims 12 and 24 are not anticipated or suggested by US '873.

In the Office Action, the Examiner rejected claims 14-17, 22 and 23 under 35 U.S.C. 103(a) as being unpatentable over US '870 in view of US Patent 4,113,241 (hereinafter "US '241"), and claims 18, 22 and 23 under 35 U.S.C. 103(a) as being unpatentable over US '870 in view of US Patent 4,834,876 (Walker, hereinafter "US '876").

US '241 discloses an apparatus for filtering a molten metal with a sintered ceramic foam filter plate.

US '876 discloses filters for filtering metallic material, in which the filters combine heating and filtering means. However, neither US '241 or US '876 disclose the arrangement of a grain-refining material feed downstream of a first filter and upstream of a second filter, to add grain-refining material as would be required to render obvious, respectively, claims 12 and 24.

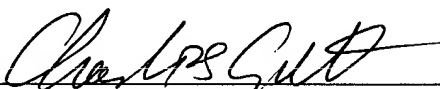
As this feature is not disclosed in US '870, US '241 or US '876, this feature is not disclosed by the combination of these references.

Accordingly, withdrawal of the rejection of claims 12 and 24 and all the claims which depend from them under 35 U.S.C. 103(a) is respectfully requested.

In view of the foregoing, it is believed that the present application is in condition for allowance and a favorable action on the merits is respectfully requested.

Respectfully submitted,

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